City of Cambridge.

ANNUAL REPORT

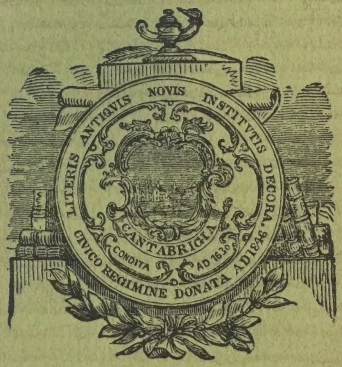
OF

THE WATER BOARD

TO

THE CITY COUNCIL,

FOR THE YEAR 1895.



Press of
Cambridge Chronicle,
1896.

City of Cambridge.

ANNUAL REPORT

OF

THE WATER BOARD

TO

THE CITY COUNCIL,

FOR THE YEAR 1895.

Press of
Cambridge Chronicle,
1896.

CAMBRIDGE WATER BOARD.
1896.

President.

JAMES M. W. HALL.

Members of the Board.

James M. W. Hall	Term expires 1896.
Stillman F. Kelley	Term expires 1897.
E. Burt Phillips	Term expires 1898.
Frank A. Allen	Term expires 1899.
George H. Howard	Term expires 1900.

Walter H. Harding, *Clerk.*

Acting Superintendent of Works.

Edwin C. Brooks.

Water Registrar.

Walter H. Harding.

Trustees of Sinking Fund of Water Loan.

The Mayor, City Treasurer, and President of the Common Council, *ex-officiis.*

CAMBRIDGE WATER BOARD.

Date of election and length of service of members, 1865-1896.

CHESTER W. KINGSLEY	1865-1894	
JOHN SARGENT	1865-1871	
A. K. P. WELCH	1865-1871	
ROBERT DOUGLASS	1865-1871	
SAMUEL SLOCOMB	1865-1876	
Z. L. RAYMOND	1871	
HENRY L. EUSTIS	1871-1885	
J. WARREN MERRILL	1871-1881	
GEORGE P. CARTER	1871-1883	
JOHN H. LEIGHTON	1876-1879	
KNOWLTON S. CHAFFEE	1879-1889	
JAMES M. W. HALL	1881-	(Now in Office.)
LEANDER M. HANNUM	1883-1884 1885-1893	
JOHN F. O'BRIEN	1884-1895	
GEORGE H. HOWARD	1889-	(Now in Office.)
E. BURT PHILLIPS	1893-	(Now in Office.)
STILLMAN F. KELLEY	1894-	(Now in Office.)
FRANK A. ALLEN	1895-	(Now in Office.)

Presidents of the Board.

J. WARREN MERRILL	1865-1867
EZRA PARMENTER	1867
JOHN SARGENT	1867-1871
J. WARREN MERRILL	1871-1873
CHESTER W. KINGSLEY	1873-1876
GEORGE P. CARTER	1876-1883
CHESTER W. KINGSLEY	1883-1894
JAMES M. W. HALL	1894-

REPORT

OF THE

CAMBRIDGE WATER BOARD.

To the Honorable, The City Council of the City of Cambridge:

GENTLEMEN:—The Cambridge Water Board herewith present their thirty-first annual report for the year ending November 30th, 1895.

In our last report we referred to the death of our former Superintendent, Mr. Nevons, and the appointment as his successor, of Mr. John L. Harrington. Little did we imagine that after only thirteen months of most efficient service, death would claim him without a moment's warning. In the midst of all the important work of the year he was taken and this loss seems almost irreparable. Nothing that has been said of him is extravagant language and nothing that we can add will express the great loss to the city in this very important department. "He filled his position," expresses the exact truth. His death occurred August 16th, 1895.

The following resolutions were adopted by the Water Board at its meeting held August 21st, 1895:

"For a second time within two years death has removed from our service the Superintendent of the Water Works. In one case, after many years of able service and many months of painful illness,—in the other, without an hour's warning, in the full vigor and promise of his young manhood, and after brief service as Superintendent of the Cambridge Water Works, marked by untiring devotion and remarkable ability, which it is no exaggeration or undue compliment to say not only met but far exceeded our expectations.

"John L. Harrington had few equals, in the judgment of this Board, as Superintendent of Water Works, and when his predecessor died, we considered it fortunate that we could call to

this service one so well equipped and who had been in direct training for it.

"Words are inadequate to express our sorrow, deep regret and disappointment because of his death. It is a loss we cannot easily make good, and with the varied works of large magnitude now in progress, and which were under his immediate supervision, we realize more each day how faithful, able and untiring his services were.

"We extend to his family our cordial sympathy, and bear witness to his high character, his great ability, his unflagging zeal and his high ideals in all he undertook.

"Among his last words to us were these: 'What I want more than all else is that the Water Board believe that I know my duty and that I will be faithful to it.'"

FINANCIAL CONDITION.

Total Cost of the Water Works.

Cost of the Works to Nov. 30, 1894, as per report of last year, ...	$3,525,993 02
Expended during the past year, ...	496,688 92
Making the total cost to Nov. 30, 1895, .	$4,022,681 92
Of above, $233,443.96—Hobbs Brook.	
" 295,956.05—Payson Park.	

Water Bond Account.

Whole amount of Water Bonds issued, . .	$3,834,900 00
Amount paid from Sinking Fund, . . .	1,619,400 00
Leaves unpaid Water Bonds outstanding, .	$2,215,500 00
From this deduct the present value of the Water Debt.	
Sinking Fund, per Trustees' account, . .	546,049 24
Leaving bonds to be paid from the Sinking Fund in the future, ...	$1,669,450 76

Payson Park Reservoir Account.

RECEIVED.

Appropriation by City Council, ...	$440,000 00
From premium on bonds sold, ...	33,264 00
	$473,264 00

EXPENDED.

40-inch pumping and distributing mains and laying same, building Payson Park Reservoir, etc., ...	249,798 16
Unused balance of appropriation . . .	$223,465 84

Hobbs Brook Reservoir Account.

RECEIVED.

Appropriation by City Council, ...	$425,000 00
From sale of grass, feed and asparagus, . .	796 78
	$425,796 76

EXPENDED.

In settlement for estates taken, building Winter and Lincoln Streets, dams and stripping a portion of the upper basin, .	182,065 50
Unused balance of appropriation, . . .	$243,731 28

For further figures as to the financial operations of the department we refer you to the Registrar's statement which accompanies this report.

Appropriations.

The yearly appropriations are reported by the Board after very careful consideration and revision, and when the appropriations as submitted by our Board are reduced by the City Council, it results usually in bills, which should be paid during the financial year in which they are incurred, being carried over into the following year. This has been notably the case during the present year, as the result of the appropriation for Maintenance account (pumping) being reduced with the consequent result of bills to the amount of over $4,000.00, which should be paid from this

year's receipts, being carried over into the next year; and this is not done for lack of sufficient funds to pay the bills, as is illustrated by the fact that the receipts for the current year exceeded the expenditures by over $29,000.

Metropolitan System as Related to Cambridge.

The past year has been the most important one in the history of the Water Works of our City, not only because of the magnitude of the work planned and in progress, but because of the Legislative act establishing a Metropolitan water system, which in the original draft of the bill, included Cambridge among the twenty-seven other cities and towns.

After earnest protest from the Mayor, the City Council, and the Water Board of Cambridge, and repeated inspection by Legislative Committees of the proposed new Hobbs Brook Basin and other important work connected therewith, Cambridge was omitted from the provisions of the bill, the Legislature being convinced that our city needed no part of the Metropolitan supply for many years to come.

As the months pass by the wisdom of this course is being demonstrated—as Cambridge has today and will have for many years to come, an ample supply of water for her needs, and nearly enough water is now, and has been for several weeks, running to waste over our Stony Brook Dam to supply two-thirds of all the water consumed by the twenty-eight cities and towns embraced in the original Metropolitan water bill.

The report of the Metropolitan Water Commission, presented to the Legislature at its last session, showed a daily consumption of water by the cities and towns in the proposed Metropolitan district of 79,623,000 gallons, with a population of 961,087. The amount of water that has gone to waste over our Stony Brook Dam the last month is 1,543,200,000 gallons, or an average of 51,440,000 gallons, daily. Could we have stored this water it would have more than half filled the enormous basin now being built at Hobbs Brook.

With proper and adequate safeguards as to pollution entering the streams and with proper care exercised to prevent needless waste of water, there can be no reasonable doubt that the plans

now in progress will before long furnish all the water that Cambridge will need for many years to come, and of a quality equal to what the Metropolitan supply will furnish.

It would have been a most unfair thing to have compelled our City to assume any part of the expense of the Metropolitan system until it should be required by us, and our City is to be congratulated on escaping the inequitable and uncalled for conditions that a participation at present in the Metropolitan supply would have imposed, for while the bill relieved our City of the use of the water until needed, it would have compelled us to contribute at once to the cost of construction of the work and this entirely for the benefit of other cities for many years to come.

We need but to refer to Page 93 of the report of the Metropolitan Water Supply Commission to convince our citizens that the conditions under which Cambridge was to be forced into the Metropolitan plan would have fixed a severe financial burden on us—forcing us to increase our water rates and for a few years to be in great danger of water famine, threatening all our domestic and manufacturing interests and with results much more beneficial to the other cities and towns in the district than to our own City.

We quote from the report of the Commissioners as follows: (Page 93).

"If the Legislature of 1895 should authorize the construction of the Metropolitan system and thereby make it practically certain that Cambridge would have an additional supply in *a few years*, it would be wiser for the City *not to proceed with the construction of Hobbs Brook Basin, the duplicate pipe line from Stony Brook to Fresh Pond and some other parts* of the proposed work."

"While this plan would not be opposed to the best interests of the City of Cambridge, *it would be greatly to the advantage of the rest of the district, as the main pipes of the Metropolitan System have to pass through Cambridge in any case* and *its* contribution to the Metropolitan System would be *much more than the cost of supplying it with water under the circumstances.*"

And this report of the Commission was presented to the Legislature after we had made contracts for a large amount

and commenced work at Hobbs Brook and Payson park. To have abandoned this work as the Commission recommended and wait "a few years" for the Metropolitan supply, meant a large loss, with no adequate result to Cambridge and *no provision whatever for water for the next few years, when it will be imperatively needed.* These two features were enough to condemn the bill so far as Cambridge was concerned.

If at some future day our City should need to supplement its present sources of supply, it will then be time enough to decide what share of the expense our City should assume of some other system. That time seems likely to be many years ahead.

Boston is quite as likely to need at that time a supply additional to the present Metropolitan project, and it may be we shall then need to rely for a small additional contribution to our own resources on an *extended* Metropolitan Supply.

Certainly, if, as the report says, it will be necessary to lay their main pipe through our streets, and this twenty-five years or more before we need to take water therefrom, this should give us a right to use it at less cost than if our streets were not needful for the main line of the pipes of the Metropolitan supply.

We suggest to the City Council whether this right to use our main avenues should not be sufficient reason for Legislative action in our favor, as a right of way through private property for water mains is always purchased at a cost, nearly equal to or larger than, the value of the land used. And should our main avenues be torn up and be liable to be disturbed at any and all times and no compensation be allowed? The action of the Legislature and the County Commissioners as to remunerating Waltham, Lexington and Lincoln for certain Cambridge water rights at Hobbs Brook would be a good basis for our argument. We think a bill should be presented to the Legislature properly guarding the interests of our City in this respect.

More or less doubt has existed in the minds of some of our leading citizens as to the wisdom of deciding to rely upon our own resources rather than upon the proposed Metropolitan supply. Both as to quantity and quality of the water they

questioned whether our supply can be depended on for the future as it should be.

During the last six months we have invited several of our prominent citizens to accompany us on our monthly inspection of the new basin, and without exception those who have gone with us have expressed their amazement and satisfaction as they have seen the ample water resources and provisions for storing the same in the new basin now under construction at Hobbs Brook.

We are confident that a visit to our new works would be all that is needed to convince any or all of our citizens that we shall have, when our works are completed, an abundance of water for many years to come and of excellent quality.

Figures may be useful and interesting as well as convincing in this connection. The maximum supply of water at present which can be furnished through our 30-inch main from Stony Brook Basin to Fresh Pond is 8,000,000 gallons per day. Add to this the daily natural yield of Fresh Pond, about 1,000,000 gallons, and we have 9,000,000 per day total available supply at present.

The consumption of water last year averaged 6,000,000 gallons per day, so we now have a margin for increased use of 3,000,000 gallons per day. If we take the average annual increase in the use of water the last eight years, — about 7 per cent.—we should reach the limit of the present supply main from Stony Brook to Fresh Pond in the year 1900 or 1901. Then we should need an additional main from Stony Brook to Fresh Pond and these two pipes would afford us all the water we could rely on from our Hobbs Brook system as at present developed, and carry us well into the next century.

It is wise to bear in mind that however ample a supply may be provided, experience has shown that it is difficult in our growing communities to plan much beyond 20 or 25 years, both because the cost involved would be too burdensome on one generation and because the ratio of increased consumption can rarely be accurately anticipated. Economy in consumption is quite as important as apparent abundance of supply.

As Cambridge is likely in the future to be more a residential

than a manufacturing city, we can more safely predict a very moderate and steady increase in the use of water.

It is very probable that at no distant day a dual system, similar to that in some European cities, notably Frankfort-on-the-Main, can be profitably introduced into our own City from other sources than Stony Brook, thus economizing that supply and deferring for many years any necessity for dependence on other than our own resources near at hand.

Hobbs Brook Basin.

This basin now comprises about 975 acres, considerable land having been added the last year. It is situated in Waltham, Lincoln and Lexington, extending in its extreme length two and one half miles, and nearly one mile wide at its lowest part in Waltham. It will be divided into two sections, the lower section extending from the Winter Street Dam to the Lincoln Street Dam and covering an area of about 692 acres. The upper section from the Lincoln Street Dam to Middle Street, Lexington, embraces about 283 acres, Of this total area about 650 acres will be flooded. The upper basin will be narrower and much shallower than the lower basin and for this reason, as the average depth of water there will be eight feet, special care has been taken to strip the surface down to a clear gravel or sandy bottom and the sides banked to sufficient height to dispose of the surplus material, and to increase the capacity of the reservoir.

The work on this part was commenced last Winter, early, and Cambridge men and teams were mostly employed all Winter and Spring, at an expense of nearly $41,000, only $4,000 additional having been paid to laborers and teams from the vicinity of the basin.

The work was prosecuted with quite satisfactory results up to May last, or as long as we could get sufficient men and teams from Cambridge. As soon as work in the City proper offered the men preferred to return home and were largely employed in laying our 24-inch Cambridge Street main and the 40-inch Payson Park main.

A contract was made with John H. Leavitt for the completion of the upper basin at an estimated expense of

$47,000, divided into two sections. On account of delay in prosecuting the work so that it could not be completed in the time named in the contract, and Mr Leavitt's inability to raise funds to pay his laborers, he ceased work in September last, and a new contract was made with Frank X. Saucier, he being the lowest bidder, to complete the work. This will cost several thousand dollars more than the contract with Mr Leavitt, but it is believed that the City is amply covered by the twenty-five per cent. reserved as per contract, and by the bond which the City holds.

Mr Saucier is prosecuting his work and hopes to have it sufficiently completed so that we can begin to fill the upper basin with water early next Spring.

The Lincoln Street Dam, which was contracted for at $22,000 in June, 1895, with Messrs Gennaro, Long & Little, is progressing well. The gate chamber is nearly done and the slope paving on the easterly half of the dam and the core wall are well toward completion. This work has been done in a substantial manner. The length of the dam will be about 550 feet.

It is expected we can utilize the upper basin early in the Spring of 1896. Its available capacity is estimated at nearly the size of Stony Brook Basin, 300,000,000 gallons, and when filled will insure us against a short supply of water until the lower or larger basin is completed. The balance of this work will be pushed as fast as possible so as to take advantage of the next Spring freshets.

Lower Basin.

The work of stripping the lower basin has not been commenced yet. The Board are waiting the decision of the County Commissioners as to allowing us to run a branch railroad to the basin to remove the loam. This should have been received before this time.

The Board are also undecided as to how deep we shall go in stripping the loam from those parts of the basin where the water will be over 10 feet deep. There is a difference in expert opinions as to what is necessary.

One section of the basin bordering the County Road in Lincoln, lying between Brook Street and Lincoln Street, has been

surveyed for stripping and bids have been called for. Work on this will probably be commenced very soon and then we can better decide as to what should be done with the rest of the basin, as to stripping. It is expected that the entire basin will be ready for use early in 1897.

The Winter Street Dam was contracted for with the Standard Construction and Supply Company, in April, 1895, the amount being $116,000.00.

Some delay occurred in the prosecution of the work but the Assurance Company, who gave the bond, assumed the responsibility for the completion of the work and through another party have been vigorously prosecuting it of late. It is expected that the dam and the completion of the new part of Winter Street embraced in the contract, will be done by the Summer of 1896 and will be a very substantial piece of work. The total length of this dam will be about 1,650 feet.

When this entire work is completed as at present planned, Cambridge will have a basin holding 2,500,000,000 gallons with an available quantity of 1,500,000,000 gallons, which with our other reservoirs will give us constantly nearly a year's supply of water, on the present basis of consumption. And it will—while insuring, with the main Stony Brook, an ample supply of water to Cambridge for many years—also be a beautiful park for Waltham, Lincoln and Lexington. Cambridge will have the benefit of the water; the other cities and towns will have the benefit of the park without cost to them.

In the last annual report it was stated that, as the Waltham authorities had questioned the right of Cambridge to take the waters of Hobbs Brook or build a basin to store the same, the Legislature had been petitioned to confirm the acts of the city in the taking of lands for building the proposed basin. The Act confirming this was passed May 9, 1895, and thus all doubt as to the legality of the city's action in the matter is removed.

In connection with the work at Hobbs Brook, the Town of Lincoln, under an act of the last Legislature, petitioned the County Commissioners that Cambridge shall re-locate the old County Road from the Waltham line to Concord Turnpike. This to be in consideration of allowing Cambridge the right to fill the County Road in places, as needed, to grade of adjoining land on

the Hobbs Brook Basin filling, so as to avoid flooding the road from the Reservoir. As the filling of the Road could not be other than a public benefit, the decision of the County Commissioners, directing Cambridge to lay out a road 50 feet wide, 24 feet of it to be a first-class hard gravel road the entire distance, is inexplicable as the present County Road is hardly 12 feet of travelled width, Our City Solicitor, after consulting eminent counsel, advises us that the County Commissioners have exceeded their authority and misinterpreted the act and an appeal has been taken to the Supreme Court, where it is hoped a more just and equitable decision will be given, and in accordance with the evident intent of the act.

The settlements for land taken at Hobbs Brook have been progressing slowly. Settlements for over half the property taken have already been made to the amount of $89,483.15. Several cases are before Commissioners and should soon be decided and it is expected that all will be settled the coming year unless counsel for the claimants prefer longer litigation. The plan and practice of the Water Board has been to settle with these parties so fairly that no reasonable cause for litigation could arise.

We are pleased to state that the disturbance among the Italian laborers employed by Mr Leavitt in the upper basin, occasioned by his having failed to pay them their wages for several weeks, was satisfactorily adjusted after several conferences with them and all who conformed to the requirements of the statute received their pay in full from the City of Cambridge. His Honor, the Mayor, gave much valuable advice and co-operation in this matter and the trouble which some of the daily papers of Boston magnified in conspicuous head lines, existed only in the lurid conception of some very imaginative newspaper reporters. Neither property nor person were injured by any of the laborers.

The Board of Health, represented by one of their members, accompanied us last month to the Basin for the purpose of advising as to the best method of preventing pollution entering the Brook in connection with the laborers employed on its borders. Effectual safeguards, as recommended by them, are being adopted and a competent physician will regularly visit the Basin until its completion to detect any violation of our rules as to this matter and advise as to any cases of disease among the laborers. Simi-

lar and satisfactory methods have been for some time in use by the Boston authorities.

Payson Park Reservoir.

Work was resumed early in the Spring by the Contractor and has proceeded up to this date. The southerly half of the Reservoir is nearly completed sufficient to flood it temporarily with water to the depth of 5 or 6 feet, and thus afford high service direct this Winter to the City.

This will be done by the request of the contractor to help preserve the concrete floor so far as it has been accepted. In the Spring, work will be resumed and the water drawn off so as to have the Reservoir completed in accordance with the contract, and the northerly half of the basin will be pushed to completion. The entire work should be ready by the Spring of 1896, although, by the terms of the contract it was to be completed December 1, 1895.

Fresh Pond.

The necessity of using all our available men in other work and the delay caused by the required topographical survey of the land around the Pond so as to enable Messrs. Olmsted, Olmsted & Eliot properly to mature their plans, as to laying out the borders of the Pond, have delayed work in this locality to some extent. Considerable progress, however, has been made on the westerly side between Huron Avenue and the Pond filling the marshy places that have developed and laying out the new street within this area.

Some filling has been done on the Concord Avenue side in what is known as "Black's Crook," but the Board are still undetermined as to how to deal with this "bottomless pit." It is, however, unnecessary to decide this matter at present.

Another year should show a marked development in carrying out the landscape plans around the Pond, which will, when completed, make one of the most attractive Parks in the country.

The large number of trees, shrubs, and plants set out last Fall to be used in this connection have rooted well and the "nursery" plan adopted last year promises most satisfactory results.

Considerable loam will be needed for the work around the Pond, and this can be supplied in abundance and of excellent

quality from Hobbs Brook Basin, if the Park Commissioners will co-operate, as the Water Board would hardly be warranted in assuming this expense for their Department only. Should the Park Department not think best to do this, it is hardly probable that it will be advisable to utilize it for Fresh Pond Park improvements.

The water in the Pond has been maintained at an average grade of 14.74, or 2.11 feet below high water grade, 16.85.

Owing to the laying of the 40-inch force main from the Pumping Station to Payson Park the water in the Pond was drawn down to grade 11.44 or 5.41 feet below high water mark, so as not to flood the pipe trench in the driveway on the southerly side of the Pond. While the foundation of the new pumping engine is being laid at the Engine House it will be necessary to keep the Pond down to about grade 13.30 so as to prevent flooding the work. But for this our Pond would now have been at high water mark as water has for six weeks been running in large quantities to waste over Stony Brook Dam.

An Ordinance was passed by the City Council, April 3, 1895, permitting Cambridge citizens to fish in the Pond between four and eight o clock in the morning under permission of the board. This privilege has been availed of with hardly a day's omission, except Sundays, and with successful results, both as to encouraging our citizens in early rising and many handsome strings of fish.

Cambridge Reservoir.

The reservoir and standpipe on Highland Street are in good condition. The satisfactory results obtained by pumping for high service against a head instead of relying on the standpipe have been continued. But from now until Spring the high service will come directly from Payson Park Reservoir at a pressure of about 62 pounds to the square inch. This should show satisfactory results both as to force and uniformity of pressure.

New Forty-Inch Main.

Early in the Spring a contract was made with our fellow citizens, Edward Kendall & Sons, to furnish the forty-inch rivetted steel pipe for our Payson Park System. The supply main extends from Payson Park Reservoir down Elm Street, across

School Street and through Richardson brothers' property in Belmont, to Cushing Street, (near Huron Avenue,) thence through Huron Avenue to Sparks, Brattle and Mason Streets, across Garden Street to Cambridge Common to Massachusetts Avenue, nearly in front of the Law School. The force main extends from the Payson Park Reservoir as a twin pipe with the supply main until it reaches the railroad bridge at the "Gray Land," Huron Avenue, where it branches off through Fresh Pond Park area and under the Fitchburg Railroad to Worthington Street and the Pumping Station.

All this work of making and laying this pipe involving an expense, when all is paid, of about $153,000, has been done largely by Cambridge men and the work will compare with the best of similar work.

The pipe will be laid and the trench filled before cold weather sets in and it is expected the high service will come through the new main early in December.

It was necessary in going through the Richardson land, and Elm Street, Belmont, to make a taking of a right of way for about 1,500 feet in length. Satisfactory settlements have been or will be made with the different parties.

The Payson Park Trustees have co-operated with us in our plans where we touched their territory and have in every way afforded us courteous and prompt assistance to complete the work which will add so much to the value of their property at Payson Park.

In this connection, we report that Mason Street, Brattle Street, from Mason Street to Sparks Street, Sparks Street, and a part of Huron Avenue have been re-surfaced and put in first class-condition and the Common put in far better condition over the pipe line trench than it ever was before, all at the expense of the Water Works Department. The cost of this was about $2,150.00.

New Pump and Engine House.

A contract was made with the Groshon High Duty Pumping Engine Company for the new pumping engine to be erected in the Engine House. We regret to report that an unreasonable delay has thus far occurred. Mr E. D. Leavitt has a special and able overseer of this work who is pushing it all he can but

with unsatisfactory results so far. We have notified the company that we shall hold them responsible for any delay beyond the time allowed for completing the work, July 1, 1896. It is hoped more rapid progress will soon be reported.

To accommodate this monster pumping engine, which will be fifty-four feet from base to top, it has been necessary to lift the top of the Engine House sixteen feet in the centre and dig down twenty feet under the present base to lay the foundation. Contracts to do this work (with L. P. Soule & Son for foundation, and Charles E. McKinnon for alterations on roof,) were closed in October last. The outside work on the roof is nearly completed and the inside work should be finished the first of the year.

The foundation to the new engine should be completed early next Spring. The cost of these two contracts will be $22,304.00.

The pumps now in use are in good order and consist of two 10,000,000 gallon pumps and two high service pumps of 1,000,000 and 2,250,000 gallons respectively. The latter will be used to pump water into Payson Park Reservoir this Winter and another Spring the plungers of one of the 10,000,000 gallon pumps will be altered so as to be able to pump to the head required at Payson Park Reservoir, 178 feet. This can then be used until the new 20,000,000 gallon pump is completed.

Stony Brook Basin.

The works at this basin are in excellent condition, under the supervision of Mr. Silas Baxter, who carefully and satisfactorily guards our interests there. A suit was brought in the Supreme Court by Mr. Roberts to recover damages for diverting, as he claimed, the water supply for his mill, located just below our Stony Brook Dam. Although it was clearly understood that the award made him by the commissioners, six and one-half years since, of $24,281.26, included water damages, yet the court decided otherwise. The case will be re-opened if possible. If not, then a settlement must be made on a basis to be determined. The Board consider this verdict as unjust and clearly contrary to the basis on which the Commissioners' award was made. But as one Commissioner is dead and another has been appointed to a Superior Court Judgeship, the Court decided the case on the

statement of the other Commissioner. It is hoped that further evidence may lead the Court to a more righteous decision.

The amount of water that has gone to waste over the dam the last eleven months has been 5,281,900,000 gallons, divided as follows for each month, there being no overflow in December, 1894.

Overflow for 1895, Stony Brook.

1894.	Days.	Gallons.
December,	—	Nothing.
1895.	Days.	Gallons.
January,	21	238,000,000
February,	24	40,300,000
March,	30	1,294,000,000
April,	30	1,412,100,000
May,	29	246,800,000
June,	7	20,200,000
July,	1	14,100,000
August,	26	80,700,000
September,	9	11,100,000
October,	17	381,400,000
November,	30	1,543,200,000

Rainfall for the Last Ten Years.

Month.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.
	In.	In.	In.	In.	In	In.	In.	In.	In.	In.
December . .	1.82	5.23	4.22	6.67	3.36	4.40	6.78	1.23	5.23	4.43
January . . .	6.41	5.28	3.32	6.64	2.94	6.68	4.32	1.87	3.05	3.57
February . .	7.35	4.66	3.95	2.81	5.22	4.61	2.46	6.43	2.91	1.07
March	3.49	4.46	5.55	3.29	7.02	5.74	3.56	2.50	0.84	2.68
April	2.43	3.94	2.60	3.73	4.83	2.72	0.77	3.25	2.94	4.15
May	3.92	1.79	6.36	5.65	6.09	2.44	6.06	7.30	4.63	2.39
June	1.48	1.86	3.25	3.41	3.51	4.01	4.23	2.18	0.81	2.76
July	3.54	4.19	2.87	8.53	2.77	3.06	2.53	2.26	2.88	3.28
August . . .	3.20	4.10	7.08	3.78	3.48	3.68	6.11	5.95	1.63	4.71
September . .	4.64	1.36	8.28	5.30	4.05	2.73	1.84	1.76	2.40	1.83
October . . .	3.63	3.22	4.83	3.73	9.31	5.10	2.15	3.77	5.19	10.16
November . .	4.22	3.90	7.70	6.51	1.28	3.08	4.04	1.99	3.34	6.09
Total	46.12	43.99	60.01	60.08	53.80	48.25	44.85	40.49	35.85	47.12

Cambridge Street Main.

Our new 24-inch main with small sections of 20-inch and 12-inch have been laid the past year in Cambridge Street, from Cambridge Common to First Street, East Cambridge, at a cost of $46,779.55 for pipe and labor,—the latter amounting to $13,-754.63 paid to Cambridge men.

This main takes the place of the 20-inch cement lined pipe which has been used for twenty-four years. The work was done most expeditiously. The street has been repaved at the expense of the Water Works Department, at a cost of $2,203.64.

Work to be Done.

The coming year will not require much done in large mains, but many smaller main pipes and all the cement lined-pipes should be replaced by iron pipes, and it is probable quite as large an amount must be appropriated as last year for this purpose.

Saving in Material and Work.

The large operations undertaken the past year involving in contracts over $650,000, were made on most satisfactory prices. The steel pipe was purchased at the lowest price ever known, and the iron pipe also at very low prices. The new pumping engine was contracted for at a very satisfactory price, and the contracts for the various sections of work at Payson Park and Hobbs Brook could not now be duplicated. It is safe to say that the City will save at least $100,000 by contracting at the times we did for these works.

Water Rates.

The only changes during the year have been a reduction of rates for houses used for students' lodgings, making them the maximum rate for family use, $15.00, instead of special rates, as formerly.

The rate for metered water has been changed from two to three cents per hundred gallons for all but manufacturing purposes which remains the same as formerly. This change was recommended as a safer basis of revenue, if a more general use of metered water for domestic purposes should be adopted, as seems probable, and would better equalize with other rates in our schedule.

We strongly advise that no change in the water rates be made the coming year. With the large amount of money that will be required for the Hobbs Brook Basin, Payson Park Reservoir, Fresh Pond improvements and general construction and maintenance, it will be hazardous to attempt any further reduction in rates at present. Should the revenue fail to supply the amount required, the balance must go into the general tax levy, or water rates be increased. We think with the present rates we can take care of any probable demands on our department.

The bills for water rates sent out from this office the last year amounted to $273,845.77 and of this sum all but $229.10 has been paid, a result which speaks well for the system and vigilance with which this work has been attended to at the Water Office.

Our Water Registrar has attended carefully to the duties of his position and our office business speaks well for his supervision.

During the year a new clerk, in the Superintendent's department, has been added, the office work having accumulated faster than it could be properly attended to. Miss Milligan, who has so long and ably filled the position of Superintendent's Assistant, has been complimented (by recommendation of our Board) by the Finance Committee in having her salary raised from $12 to $15 per week. The Board also recommended an increase of $200 in the salary of Mr Lincoln, the Registrar's Assistant, and we hope the Finance Committee may report favorably on the recommendation.

We have preferred to have longer office hours with less clerical help, believing we should have more efficient service and better results, and we are sure this has proved to be the correct plan.

The position of Superintendent, made vacant by the death of Mr. Harrington, has been temporarily filled by the appointment of Mr. E. C. Brooks, who for twenty-five years has been Engineer at the Pumping Station. Mr. Brooks' familiarity with the whole system has made his services of great value and the work has gone on without interruption. But as Mr Brooks will have considerable extra responsibility and care in the erection of the new pumping engine and the necessary preparation for it, the Board can hardly expect him to discharge the double duties of Superintendent and Engineer, for a much longer period.

Two months since Mr. C. B. Parker was chosen as assistant superintendent. He came well recommended and has had a practical training in the Engineer's and Park Departments of our City.

Water Supplied and Consumed.

	Gallons.
Total pumped in 1894	2,127,878,627
" " " 1895	2,190,781,892
Daily average pumping for high service	458,960
" " " " low "	5,543,452
Showing daily average consumption in 1895	6,002,142
Daily average consumption in 1894	5,829,804
Increase of daily average	172,338 or 3 per cent.

We refer to the Superintendent's report for further details.

Our relations with the Executive have been of the most cordial character. We bear united testimony to his unfailing attention to our requests and his constant and vigilant inspection with us of the progress of the great work done the past year. His advice and co-operation have been of great service to the City in this direction. We bear grateful testimony to the continued confidence of the City Council in all our plans and recommendations. It is a very considerable compensation for our gratuitous services to the City.

The Water Board have endeavored carefully and wisely to administer their trust. We believe one of the reasons for the continued success of the Water Department is because it has been and is conducted on business principles. We believe our fellow citizens desire it to be continued on that basis, and it must be so maintained if the results in future years are to compare favorably with the past.

Nothing has occurred during the year to mar the mutually pleasant relations among the members of the Board, and we look forward to another year with united desire that the interests of our City may be greatly advanced and protected in the large plans of the Water Board as already submitted for your consideration.

We are pleased to report that the last analysis of Hobbs Brook water made a few weeks since by Professor Wood, shows it to be of good quality and free from all deleterious substance, although somewhat more colored than usual owing to recent heavy rains and consequent larger surface flowage.

Respectfully submitted,

JAMES M. W. HALL,
GEORGE H. HOWARD,
STILLMAN F. KELLEY,
E. BURT PHILLIPS,
FRANK A. ALLEN.

REPORT

OF THE

WATER REGISTRAR.

WATER REGISTRAR'S OFFICE,
CAMBRIDGE, December 10th, 1895.

To the Cambridge Water Board:

GENTLEMEN, — In compliance with the requirements of the City Ordinance, I present the thirty-first annual report of the operations of this department, showing the receipts, expenditures and abatements, together with a statement of the number of water-takers, etc., for the year ending November 30th, 1895.

Amount of bills remaining unpaid Nov. 30th, 1894:

Water rates	$730 80
Meter rates	873 08
Supplies and repairs	1,969 64
Off and on	84 00
Seals	22 00
Rent	640 69
Maintenance account	296 23

Amount of bills placed in the hands of City Treasurer for collection, from Nov. 30, 1894 to Nov. 30, 1895: —

Water rates	$209,257 35	
Meter rates	64,588 42	
Supplies and repairs	9,361 72	
Off and on	595 40	
Seals	167 75	
Rent	142 65	
Maintenance account	1,097 11	
Construction account	1,916 59	
Total bills		$291,743 43

There have been collected: —

Water rates	$204,657	50
Meter rates	64,681	72
Off and on	573	40
Seals	178	25
Supplies and repairs	8,659	15
Rents	96	00
Maintenance account	1,062	11
Construction account	1,833	52

There have been abated: —

Water rates	$4,892	48
Supplies and repairs	9	72

There remain unpaid: —

Water rates	$488	35
Meter rates	749	35
Supplies and repairs	2,662	49
Off and on	90	00
Seals	7	75
Rent	687	34
Maintenance account	331	23
Construction account	83	07
		$291,743 43

Expenditures.

Construction acc't (general)	$17,699	57
" " (Fresh Pond Reservoir)	42,167	34
" " (Hobbs Brook Reservoir)	182,065	50
" " (Payson Park Reservoir)	249,798	16
" " (Fresh Pond Land)	4,958	35
Maintenance " (General)	25,397	59
" " (Office)	5,868	87
" " (Pumping)	14,669	18
" " (Renewal of main pipe)	45,042	66
" " (Stony Brook Reservoir)	1,078	52
Supply account	6,905	02
		$595,650 76

Abatements.

Water rate bills to the amount of	$4,892	48
Supply and repair bills to the amount of	9	72
		$4,902 20

Refunds.

Water rates to the amount of	$2,525	60
Which amount deducted from the receipts	269,339	22
Leaves net receipts for water	$266,813	62

Amount brought forward, ...	$266,813 62	
Add off and on, rents and seals and maintenance account	1,909 76	
Makes net receipts of "rates, fines, etc."		$268,723 38

Off and On.

Water has been shut off for non-payment of rates or per order on account of vacancy, and seals have been applied to fixtures by request of owners, as follows: —

Water shut off in 1895	584
Supplies let on, shut off in 1895	424
Supplies let on, shut off in previous years	75
New supplies let on	485
Seal locks applied to fixtures in 1895	921
Seal locks removed, put on in 1895	455
Seal locks removed, put on in previous years	437

Comparative Statement.

	1894.		1895.	
CONSTRUCTION ACC'T (PAYSON PARK RESERVOIR)				
Received.				
From bonds issued	$155,300 00	—	$440,000 00	
From sale of loam	2,902 20	—	—	
From premium on bonds sold			33,264 00	
		$158,202 20		$473,264 00
Expended.				
Forty-inch pumping and distributing mains, Payson Park Reservoir, etc., etc.	10,423 91	—	249,798 16	
Balance of appropriation	147,778 29	158,202 20	223,465 84	473,264 00
CONSTRUCTION ACC'T (HOBBS BROOK RESERVOIR).				
Received.				
From bonds issued	$100,000 00	—	$425,000 00	
From premium on bonds	22,323 00	—	—	
From sale of grass, feed and asparagus			796 78	
		$122,323 00		$425,796 78
Expended.				
Settlement for estates taken, building Winter and Lincoln St. dams and stripping basin above Lincoln St.	51,378 46	—	182,065 50	
Balance of appropriation	70,944 54	$122,323 00	243,731 28	425,796 78
CONSTRUCTION ACC'T (FRESH POND LAND).				
Received.				
From bonds issued		$52,000 00		$65,000 00
Expended.				
Settlement for estates taken	28,489 89	—	4,958 35	
Balance of appropriation	23,510 11		60,041 65	
		52,000 00		65,000 00

Comparative Statement (*continued*).

	1894.		1895.	
CONSTRUCTION ACCT. (FRESH POND RESERVOIR).				
Received.				
From bonds issued .	$31,632 06	—	$17,153 46	
From excess of receipts from "Rates, fines, etc.	34,000 00	—	25,000 00	
From sale of plants .	—	—	13 88	
		$65,632 06		$42,167 34
Expended.				
For filling and grading at Fresh Pond .		65,632 06		42,167 34
CONSTRUCTION ACC'T (GENERAL).				
Received.				
From bonds issued .	$40,000 00	—	$16,676 71	
From sale of buildings at Fresh Pond . .	1,239 00	—	—	
From fire supplies put in on premises, etc., etc.	—		1,022 86	
		41,239 00		$17,699 57
Expended.				
Sundry bills . . .	—	41,239 00	—	17,699 57
MAINTENANCE ACC'T.				
Received.				
Accrued interest on water bonds sold .	$816 67	—	$1,555 56	
Sale of grass, wood, old iron, etc. . .	967 89	—	1,062 11	
From "Rates, fines, etc."	251,148 67		267,661 27	
		$252,933 23		$270,278 94
Expended.				
Care and repairs . .	51,519 03	—	$92,056 82	
Interest on water debt	82,405 00	—	81,615 00	
Paid to Sinking Fund Commissioners . .	65,152 50	—	69,142 50	
Public sanitaries . .	825 44			
		$199,901 97		$242,814 32
Excess of receipts	—	$53,031 26	—	$27,464 62

Comparative Statement (*continued*).

	1894.		1895.	
SUPPLY ACCOUNT.				
Received.				
Pipe and labor on supplies	—	$5,648 99	—	8,659 15
Expended.				
Sundry bills for stock and labor	—	5,297 71	—	6,905 02
		351 28		1,754 13

1894.	Maintenance account, excess of receipts	$53,031 26	
	Supply account, excess of receipts . .	351 28	
	Excess of total receipts over total expenditures	53,382 54	
	Transferred to Construction Account (Fresh Pond Reservoir)	34,000 00	
	Balance due the Sinking Fund . .		$19,382 54
1895.	Maintenance Account, excess of receipts	$27,464 62	
	Supply Account, excess of receipts . .	1,754 13	
	Excess of total receipts over expenditures	29,218 75	
	Transferred to Construction Account (Fresh Pond Reservoir)	25,000 00	
	Balance due the Sinking Fund . .		$4,218 75

Statement of the yearly revenue received from water rates since the purchase of the works by the City: —

From	April	28, 1865,	to Dec	1, 1865	$32,367 19
"	Dec.	1, 1865,	"	1, 1866	40,073 27
"	"	1, 1866,	"	1, 1867	52,733 62
"	"	1, 1867,	"	1, 1868	63,747 42
"	"	1, 1868,	"	1, 1869	76,149 30
"	"	1, 1869,	"	1, 1870	92,605 95
"	"	1, 1870,	"	1, 1871	111,782 65
"	"	1, 1871,	"	1, 1872	127,201 30
"	"	1, 1872,	"	1, 1873	146,117 32
"	"	1, 1873,	"	1, 1874	153,634 27
"	"	1, 1874,	"	1, 1875	138,880 37
"	"	1, 1875,	"	1, 1876	179,166 76
"	"	1, 1876,	"	1, 1877	154,843 59
"	"	1, 1877,	"	1, 1878	157,443 91
"	"	1, 1878,	"	1, 1879	164,681 90
"	"	1, 1879,	"	1, 1880	173,325 49
"	"	1, 1880,	"	1, 1881	170,062 73
"	"	1, 1881,	"	1, 1882	177,430 80
"	"	1, 1882,	"	1, 1883	179,361 89
"	"	1, 1883,	"	1, 1884	161,526 27
"	"	1, 1884,	"	1, 1885	185,544 36
"	"	1, 1885,	"	1, 1886	199,404 43
"	"	1, 1886,	"	1, 1887	204,748 64
"	"	1, 1887,	"	1, 1888	211,156 27
"	"	1, 1888,	"	1, 1889	221,124 70
"	"	1, 1889,	"	1, 1890	231,116 32
"	"	1, 1890,	"	1, 1891	227,054 53
"	"	1, 1891,	"	1, 1892	237,527 08
"	"	1, 1892,	"	1, 1893	242,219 78
"	"	1, 1893,	"	1, 1894	250,032 71
"	"	1, 1894,	"	1, 1895	266,813 62

In addition to the manufactories, etc., supplied through meters, water is supplied to 18,849 families; 1,091 stables, with 3,281 horses and 295 cows; 313 shops; 736 offices and stores by the following fixtures, *viz.*: —

22,716 faucets,	15 hopper closets,
7,101 wash basins,	92 urinals,
8,315 wash tubs,	22 yard hydrants,
5,298 bath tubs,	5 fountains,
546 slop closets,	44 tumbler-washers,
17,149 pan closets,	1,942 hand-hose,

11 motors.

Also,

859 fire-hydrants (besides 19 on private premises),
8 fire reservoirs,
22 drinking fountains in public squares,
57 street-watering standpipes,
4 public sanitaries.

The above schedule of fixtures does not include those in school houses, engine houses, police stations, and other city buildings.

The usual house-to-house inspection of the service pipes and fixtures on the premises of the water takers has been made with the usual satisfactory and remunerative results.

Respectfully submitted,

Walter H. Harding,
Registrar.

ANNUAL STATEMENT

OF THE

WATER REGISTRAR TO THE COMMITTEE ON ACCOUNTS, DEC. 1, 1895.

Water rates unpaid, Nov. 30th, 1894		$1,603 88	
Off and on rates unpaid, Nov. 30th, 1894		84 00	
Rent unpaid, Nov. 30th, 1894		640 69	
Seals unpaid, Nov. 30th, 1894		22 00	
Maintenance unpaid, Nov. 30th, 1894		296 23	
			$2,646 80
Bills placed in hands of City Treasurer for collection, from Dec. 1, 1894, to Dec. 1, 1895: —			
Water Rates from Annual Ledgers	$194,857 05		
Water Rates from Fractional Ledgers	14,400 30		
Water Rates from Meter Ledgers	64,588 42		
Off and on water	595 40		
Rent	142 65		
Seals	167 75		
Maintenance Account	1,097 11		
Construction Account	1,916 59		
		$277,765 27	
Total bill on "Rates, Fines, etc.," and Construction Account		$280,412 07	
Supply and repair bills unpaid, Nov. 30, 1894	$1,969 64		
Supply and repair bills placed in hands of City Treasurer for collection, from Dec. 1, 1894, to Dec. 1, 1895	9,361 72		
		$11,331 36	
Total bills			$291,743 43
There has been collected: —			
Annual Ledgers	$193,726 55		
Fractional Ledgers	10,930 95		
Meter Ledgers	64,681 72		
Amount carried forward	$269,339 22		

Amount brought forward .	$269,339 22		
Off and on Ledgers	573 40		
Rent Ledgers	96 00		
Seals Ledgers	178 25		
Maintenance Account	1,062 11		
Construction Account	1,833 52		
Total collection on "Rates, Fines, etc." and Construction Account		$273,082 50	
Collections on Supply and Repairs Accounts		8,659 15	
Total collections		$281,741 65	
There has been abated, Water Rates .	$4,892 48		
There has been abated, Supplies and Repairs	9 72		
There remain uncollected: —			
Water Rates	1,237 70		
Supplies and Repairs	2,662 49		
Off and on	90 00		
Seals	7 75		
Rent	687 34		
Maintenance Account	331 23		
Construction Account	83 07		
		$10,001 78	
			$291,743 43
Total bills for collection		$291,743 43	
Less abated	$4,902 20		
Less refunded	2,525 60		
Less unpaid	5,099 58		
		$12,527 38	
Net receipts			$279,216 05

Attest: WALTER H. HARDING,
Registrar.

CAMBRIDGE, December 13th, 1895.

We have examined the accounts of the Water Registrar and find that they correspond with the record submitted by the City Treasurer and Auditor in every item.

FRANK A. ALLEN
STILLMAN F. KELLEY } *Committee on Accounts.*

CITY OF CAMBRIDGE,
OFFICE OF CITY TREASURER,
December 1, 1895.

To the Cambridge Water Board:

GENTLEMEN, — I give you herewith a record of the transactions between the Water Office and the City Treasurer's Office, during the year ending November 30, 1895 : —

Gross collections for account of Water Works, "Rates, fines, etc."	$275,079 35
Abatement certificates received and paid on "Water Rates" . .	4,892 48
Gross collections for account of "Water Works Supply Account"	8,668 87
Abatement certificates received and paid on "Supply Account" .	9 72
"Refund" certificates have been presented and paid to the amount of	2,525 60
Uncollected bills in my hands, November 30, 1895, for account of "Maintenance" and "Water Rates" amount to	2,354 02
Uncollected bills in my hands, November 30, 1895, for account of "Supplies, Repairs, etc.," amount to	2,662 49
Gross collections for account of "Water Works Construction, General Account"	1,022 86
Gross collections for account of "Water Works Construction, Fresh Pond Reservoir Account"	13 88
Gross collections for account of "Water Works Construction, Hobbs Brook Reservoir Account	796 78
Gross collections for account of "Water Works Maintenance, General Account	1,062 11

Very respectfully,

WILLIAM W. DALLINGER,
City Treasurer.

CAMBRIDGE, Dec. 11, 1895.

I have examined the above statement and find the same correct.

HARRY T. UPHAM,
City Auditor.

REPORT

OF THE

SUPERINTENDENT OF WATER WORKS.

CAMBRIDGE, December 1, 1895.

To the Honorable Water Board of the City of Cambridge:

GENTLEMEN, — In compliance with the City Ordinance, I herewith submit the Thirty-first Annual Report of the Superintendent, for the year ending Nov. 30th, 1895.

On August 16th, Mr. John L. Harrington, Superintendent for the past year, died, and on August 19th I was elected Acting Superintendent.

Consumption.

The total amount of water pumped during the past year was 2,190,781,892 gallons.

High service, ...	167,421,842 gallons.
Low "	2,023,360,050 "

Daily average pumped during the year was 6,002,142 gallons.

High service, ...	458,690 gallons.
Low "	5,543,452 "
Amount of water sold by meter, . . .	532,303,500 gallons
" " " used for sprinkling streets,	89,575,575 "
" " " " " drinking fountains,	30,000,000 "
" " " " " flushing sewers,	1,250,000 "
" " " " " cleansing sanitaries,	7,500,000 "
Total	660,629,075
Leaving for domestic purposes, . . .	1,530,152,817

Number of gallons daily for each inhabitant, on the total amount pumped, 71.65 gallons.

Number of gallons daily for each inhabitant, on the amount used for domestic purposes, including water for private stables, hose, building and fire purposes, 50.04 gallons.

Comparative Statement of Total Pumping During the Past 6 years.

Date,	Total Yearly Pumping.	Increase or Decrease.	Average Daily Pumping.	Increase or Decrease.	Gallons to each Inhabitant, daily.
1890	1,638,550,512	112,111,507, incr'se	4,489,178	307,155, increase	62.35
1891	1,778,056,775	139,506,263, "	4,871,388	382,210, "	64.71
1892	1,961,362,760	183,305,985, "	5,358,914	487,526, "	66.00
1893	2,234,863,924	273,501,164, "	6,122,915	764,001, "	74.50
1894	2,127,878,627	106,985,297, decr'se	5,829,804	293,111, decrease	69.19
1895	2,190,781,892	62,903,265, incr'se	6,002,142	172,338, increase	71.65

Comparative Statement of Domestic Pumping During the Past 6 Years.

Date.	Domestic Yearly Pumping.	Increase or Decrease.	Average Daily Pumping.	Increase or Decrease.	Gallons to each Inhabitant, daily.
1890	1,217,062,012	61,140,305, incr'se	3,334,416	167,507, increase	46.08
1891	1,270,360,425	53,298,413, "	3,480,439	146,023, "	46.24
1892	1,426,400,135	156,039,710, "	3,897,268	416,829, "	48.00
1893	1,668,235,574	241,835,439, "	4,570,509	673,241, "	55.61
1894	1,547,943,977	120,291,597, decr'se	4,240,942	329,567, decrease	50.34
1895	1,530,152,817	17,791,160, "	4,192,199	48,743, "	50.04

Total amount of coal consumed, ... 3,422,650.00 lbs
Daily average, ... 9,377.00 "
Coal consumed per million gallons pumped . 1,562.29 "
Highest water in Fresh Pond was on June 2, 17.30
Lowest " " " " " " Sept. 15, 11.44
Highest " in Stony Brook Reservoir was on April 15, ... 82.56
Lowest water in Stony Brook Reservoir was on Dec. 11, ... 74.81
Daily average height of Fresh pond, ... 14.74

Total rainfall at pumping station, ...	47.12	in
" " " Stony Brook Reservoir, ...	50.52	"

Fresh Pond and Surroundings.

The quality of the water has been fully as good as in past years and the quantity has been sufficient for all needs. The water was drawn down during August and September for the purpose of laying the new 40-inch pumping main along the shore of the pond near Boathouse Nook, and has since been kept at a low stage to facilitate work on the foundations for the new engine at the pumping station.

The driveway has been regularly watered and the grass on the borders and banks kept cut. The slope of the bank on the southerly side, above the retaining wall, seems to be too steep to stand, as large pieces of the sod have slid off during some of the recent heavy rains. All grass not needed has been sold standing.

The work of filling and grading around the pond was begun on July 1st, and has continued through the season. All work done since the latter part of August has been in accordance with the plans of Olmsted, Olmsted & Eliot, and has been confined to the position along Huron Avenue, near White's Bank. The work of filling in "Black's Crook" was stopped July 27th, the mud showing no signs of giving away from the filling.

The ordinance in regard to fishing in the pond having been so amended as to permit it under such regulations as the Water Board should prescribe, a boat was purchased and permits granted to all citizens of Cambridge who made application. The hours fixed upon are from 4 to 8 A. M. during the summer and from 6 to 10 A. M. during October and November. 185 permits have been granted and 127 have been used.

Fresh Pond Reservoir.

	Lowest Point Reached During Month.	Highest Point Reached During Month	Monthly Rainfall. Inches.	Intake Gate.			
				8th Opening.		30th Opening.	
				Opened Full Capacity.	Closed.	Opened Full Capacity.	Closed.
December 1, 1894	12.41			During entire month.		During entire month.	
" 31, "		13.88	4.43				
January 1, 1895	43.90			During entire month.		During entire month.	
" 31, "		15.31	3.57				
February 1, "	15.35			During entire month.		During entire month.	
" 28, "		15.66	1.07				
March 1, "	15.68			During entire month.			March 19.
" 31, "		16.65	2.68				
April 15, "		16.92		During entire month.			During entire month.
" 22, "	16.58		4.15				
May 8, "	16.66			During entire month.		May 8.	
" 31, "		17.29	2.39				
June 2, "		17.30			June 5.		June 5.
" 26, "	16.30		2.76	June 11.		June 11.	
July 10, "		16.93			July 11.		July 11.
" 31, "	14.73		3.28	July 31.		July 31.	
August 8, "		14.92			August 6.		August 6.
" 31, "	12.67		4.71				
September 1, "		12.63		September 14.			During entire month.
" 15, "	11.44		1.83				
October 3, "	11.56			During entire month.			During entire month.
" 31, "		12.70	10.16				
November 1, "	12.98			During entire month.			During entire month.
" 27, "		13.56	6.09				
Total			47.12				

Pumping Station and Surroundings.

The work going on this season and that to follow next will not allow of keeping the grounds about the station in the condition we could wish for. The alterations on the building and the foundation for the new engine are well advanced.

I would repeat the recommendation of last year that the dwelling houses at the station be painted.

Reservoir.

The reservoir on Highland Street has needed no repairs during the year and is in good condition.

The standpipe should be painted if it is intended to be kept after the completion of Payson Park Reservoir.

Pipe Yard.

The buildings at the pipe yard are in good condition.

Pipe Bridges.

The Massachusetts Avenue bridge has been repaired and is in good condition. The Mt. Auburn bridge has needed no repairs. The bridge over the Charles River at Brookline Street is in the same condition as at the date of the last report.

High Service.

In order to extend the high service to an apartment house on Ellery Street the check valve was moved south 207 feet.

The high service system has been extended in Highland Street to cover some new houses built upon the hill.

In Massachusetts Avenue 135 feet of 6-inch pipe has been laid, and three valves set in order to extend the high service to Central Square.

Leakage and Waste.

During the year all the main pipes east of Prospect and Magazine Streets have been inspected by shutting off sections during the night. It was the intention to have continued the inspection through the rest of the City, but it did not seem practicable to do so.

The consumption of water this year will compare very favorably with last, when we consider that no restrictions as to the use of

hand hose have been made, and that the rainfall during the summer months was very little more than last year.

The number of leaks stopped has been as follows: one on 3-inch main; five on 4-inch mains; five on 6-inch mains; one on 8-inch main; one on 12-inch main; two on 20-inch mains; two on 20-inch cement mains; one on 24-inch pumping main; four on Stony Brook Line; ninety-nine on supplies in the street; 1212 on premises—making a total of 1332 leaks stopped. Of these, 1193 were found by inspectors and were repaired by the owner or occupant.

Table Showing a Gain or Loss in Total Consumption for the Year 1895 Over 1894.

	Total Consumption 1894.	Total Consumption, 1895.	Increase or Decrease x or —
December, 1894.	188,418,350	169,049,300	— 19,369,050
January, 1895.	185,716,360	183,412,815	— 2,303,545
February, "	173,946,620	193,957,360	x 20,010,740
March, "	169,404,760	170,548,450	x 1,143,690
April, "	161,559,235	163,043,803	x 1,484,568
May, "	182,975,952	188,377,081	x 5,401,129
June, "	197,204,015	200,568,600	x 3,364,585
July, "	205,709,330	192,261,840	— 13,457,490
August, "	179,500,505	193,464,380	x 13,963,875
September, "	167,571,040	188,626,178	x 21,055,138
October, "	163,760,190	182,274,415	x 18,514,225
November, "	152,112,270	165,207,670	x 13,095,400
Total . .	2,127,878,627	2,190,781,892	x 62,903,265

Main Pipe.

Main pipes have been laid in the following streets: 4 feet of 8-inch in Appleton Street; 281 feet of 4-inch in Ashton Place; 232 feet of 8-inch and 20 feet of 6-inch in Athenæum Street; 24 feet of 6-inch in Austin Street; 194 feet of 6-inch in Berkshire Street; 1117 feet of 12-inch and 33 feet of 4-inch in Binney Street; 97 1-2 feet of 6-inch in Charles Street; 6 feet of 6-inch in Church

Street; 709 feet of 6-inch in Clarendon Avenue; 241 feet of 6-inch in Clay Street; 68 feet of 6-inch in Clifton Street; 181 feet of 6-inch in Columbus Avenue; 163 1-2 feet of 4-inch in Cypress Street; 3 feet of 6-inch in Ellery Street; 20 feet of 4-inch in Ellsworth Park; 235 feet of 4-inch in Endicott Court; 77 feet of 6-inch in Eustis Street; 74 feet of 4-inch in Eustis Court; 33 feet of 6-inch and 367 feet of 4-inch (renewal) in Farwell Place; 100 feet of 1 1-4-inch at Fresh Pond; 145 feet of 6-inch in Gorham Street; 36 feet of 4-inch in Groveland Street; 288 feet of 6-inch in Harvey Street; 541 feet of 6-inch in High Street; 2 feet of 6-inch and 32 feet of 4-inch in Highland Avenue; 148 feet of 4-inch in Highland Park; 109 1-2 feet of 4-inch in Langdon Street; 467 1-2 feet of 6-inch in Larch Street; 117 feet of 2-inch in Lowland Avenue; 148 1-2 feet of 6-inch in Madison Avenue; 93 feet of 6-inch in Marney Street; 24 feet of 12-inch, 155 feet of 6-inch, and 2 feet of 4-inch in Massachusetts Avenue; 1391 feet of 6-inch in McDonald Street; 88 feet of 2-inch in Munroe Court; 124 feet of 4-inch in Neill Court; 85 feet of 2-inch in Neligan Place; 36 feet of 4-inch in Oak Place; 115 feet of 2-inch in Olive Place; 252 feet of 6-inch in Orchard Street; 486 feet of 6-inch in Osborne Street; 177 feet of 6-inch in Orrin Street; 4 feet of 4-inch in Otis Street; 112 feet of 4-inch in Oxford Street; 142 feet of 2-inch in Pemberton Terrace; 404 feet of 6-inch in Porter Road; 6 feet of 6-inch in Portland Street; 442 feet of 6-inch in Raymond Street; 385 feet of 6-inch in Remington Street (renewal); 163 feet of 4-inch in Rogers Court; 584 1-2 feet of 6-inch in Russell Street (578 feet renewal); 499 1-2 feet of 6-inch in Seventh Street; 248 feet of 8-inch in Short Street (renewal); 180 feet of 4-inch in Stevens Court (renewal); 602 feet of 6-inch in Trowbridge Street (595 feet renewal); 221 1-2 feet of 2-inch in Trowbridge Court; 104 feet of 1-inch in Vine Street; 85 1-2 feet of 6-inch in Washburne Avenue; 189 feet of 6-inch in Winslow Street; 8950 feet of 24-inch, 1948 feet of 20-inch and 722 feet of 12-inch (cast iron) pipe in Cambridge Street.

For the accommodation of the Sewer Department, on account of the new sewers, the main pipe on Mt. Auburn Street has been relocated.

The location of the main pipe in Massachusetts Avenue, above Waterhouse Street, has been changed so as not to interfere with

the building of the storm sewer now being laid by the Metropolitan Construction Co.

As the Sewer Department, in order to connect with the Metropolitan sewer, used the location occupied by our water main in Willard Street, the pipe has been offset.

McDonald Street has been extended to Huron Avenue, and the width increased to one hundred feet. To conform to this improvement the location of the 6-inch pipe laid in 1890 has been changed and an additional pipe laid on the west side of the street. When the Street Department has completed the grading the pipe will be extended on both sides of the street and connected so as to make a complete circuit.

Total length of cast iron pipes laid during the year 1895 (not including the renewal in Cambridge Street) is 12,932 feet, equal to 2.44 miles, the weight of the metal being 207.02 tons.

11,620 feet or 2.20 miles have been laid in Cambridge Street, the weight of the metal being 1225.21 tons.

The different sizes of pipe laid, their lengths and weights are as follows :—

Size.	Length in Feet.	Weight in Tons.
12 inches	1,141	44.31
8 "	484	10.58
6 "	8,997	132.54
4 "	2,310	19.59
Total . .	12,932	207.02
CAMBRIDGE STREET.		
24 inches	8,950	1,034.55
20 "	1,948	162.62
12 "	722	28.04
Total . .	11,620	1,225.21

I recommend there be laid in Chester Street, from North avenue, east, a new line of 6-inch pipe to replace the 4-inch cement pipe, laid in 1867; in Columbia Street, from Broadway to Cambridge Street, a new line of 12-inch to replace the 6-

inch laid in 1869; in Erie Street, from Magazine to Pearl Street, a new 6-inch line to replace the old 3-inch, laid in 1867; in Forest Street, from Massachusetts Avenue, east, a new line of 6-inch pipe to replace the old 4-inch cement pipe, laid in 1867; in Garden street, a new line of 6-inch pipe to connect Dublin Street; in Massachusetts Avenue, from Porter's Station to Rindge Avenue, a new line of 16-inch pipe to replace the old 8-inch cement pipe, laid in 1867, and from Rindge Avenue to Cedar Street, a new line of 12-inch pipe to replace the old 8-inch cement and 6-inch iron pipe, laid in 1867; in Mellen Street, from Massachusetts Avenue to Oxford Street, a new line of 6-inch pipe to replace the old 4-inch, laid in 1867 and 1872; in Prospect Street, from Cambridge Street, north, a new line of 8-inch pipe to replace the old 10-inch pipe, laid in 1867; in Portland Street, from Harvard Street to Hampshire Street, a new line of 12-inch pipe, there being none in the street at present; in River Street, from Green Street to Blackstone Street, a new line of 8-inch pipe to replace the old 4-inch cement pipe, laid in 1867; in Sacramento Street, from Massachusetts Avenue to Oxford Street, a new line of 6-inch pipe to replace the old 6-inch cement pipe, laid in 1867; in Walden Street, from Huron Avenue to Dublin Street, a new line of 20-inch pipe to replace the 20-inch cement pipe, laid in 1873; in Walnut Court, connecting Somerset Street, a new line of 6-inch pipe to replace the old 3-inch pipe, laid from 1867 to 1873; in Windsor Street, from Cambridge Street to State Street, a new line of 12-inch pipe to replace the 3-inch and 4-inch, laid in 1867 and 1869.

New Supplies.

Four hundred and ninety-nine new supplies have been laid; total number to date twelve thousand, six hundred and eighty-one.

Seventy-one supplies have been renewed; of these, six have been enlarged; seventeen have been furnished with sidewalk shut-offs; two have been extended.

Supplies in the following streets have been connected to the new mains: Farwell Place, Remington, Russell, Seventh, Short, Stevens Court and Trowbridge.

Supplies in Baldwin Street, Mt Auburn Street, Scott Street

and Third Street have been offset on account of new sewers, and in Harvard and Munroe Streets on account of new gas mains.

Two supplies laid for the Sewer Department in Binney and Sixth Streets have been removed.

Supplies connected to the 3-inch main in Harvard Row have been connected to the 20-inch main, the old 3-inch main having been abandoned.

In order to cover by meter a block owned by J. M. Robbins, on Prospect Street, a 2-inch supply has been laid and the meter set.

As the Water Board decided to meter boarding houses, it has been necessary to lay six supplies in order to separately connect the houses to be covered by the meters.

The Park Department having purchased land on Murray Street, the supplies on that site have been shut off and the service boxes removed.

Drinking Fountains.

With the exception of the removal of the fountain at Massachusetts Avenue and Walden Street, no changes have been made in the drinking fountains during the year.

The fountains in Cedar Street, Garden Street, Massachusetts Avenue, Winsor Street, Davis Square and Putnam Square have received necessary repairs.

There are twenty-two now in use.

Street Watering Standpipes.

One addition to the number of standpipes has been made during this year, *i. e.*, at the corner of Walden and Dublin Streets.

A new casting has been placed on the standpipe on Prison Point Street, the original one having been broken by a team.

A new standpipe has been placed on Cambridge and Warren Streets to replace one broken last winter by a coal team.

The number in use is fifty-seven.

Gates.

The annual inspection of gates has been made and they have been found in good condition.

The locations have been marked.

Attending the laying of the new main in Cambridge Street

many gates have been removed on the connecting streets and new ones set, the sizes of most of these having been increased; an account of these will be found in the Cambridge Street account.

A 10-inch gate has been set in Binney Field for the use of the Park Department.

Boxes.

Five hydrant, twenty-one iron and six wooden boxes—total, thirty-two—have been set in place of old ones removed.

The gate boxes in Brookline, Columbia, Magazine and Third Streets have been raised.

Check Valves.

Three check valves,—*i. e.*, one ten-inch, one eight-inch, one four-inch, have been placed in Massachusetts Avenue in order to extend the high service to near Central Square and increase the pressure for the occupants of the buildings in that vicinity.

The check valve in Ellery Street has been moved south 207 feet to supply the upper stories of an apartment house built this year.

A six-inch check valve has been set in Highland Avenue and the high service extended thereby from Broadway to beyond the elevation in this avenue.

Meters.

The number of meters now in use is 342.

Hydrants.

Thirty-four hydrants have been set during the year. This number includes the Cambridge Street additions.

An old flush hydrant has been removed and a new Chapman post set in its location on Buckingham Street.

The hydrants on Wendell Street have been re-located to conform to the improvements made by the Street Department.

A post hydrant has been set at the corner of First and Munroe Streets to replace one broken by a team owned by the City of Boston.

A flush hydrant has been set on the Binney Field for the use of the Park Department while flooding the ground during the Winter.

The hydrants now in Green and Waterhouse Streets has been repaired.

The hydrants in Albany Street have been raised.

The hydrant at the corner of McDonald and Mt. Auburn Streets has been located on Mt. Auburn Street near the corner of McDonald Street.

All of the hydrants have been inspected and painted.

A Holyoke hydrant has been set in Church Street, near the head of Palmer Street.

Table Showing the Daily Average Number of Gallons by the Month Flowing Over the Waste Way at Stony Brook.

December, 1894. No overflow.				June,	1895.	673,333 gals.	7 days.
January,	1895.	7,677,419 gals.	21 days.	July,	"	454,838 "	1 "
February,	"	1,439,285 "	24 "	August,	"	2,603,225 "	26 "
March,	"	41,741,935 "	30 "	September,	"	3,700,000 "	9 "
April,	"	47,070,000 "	30 "	October,	"	12,303,225 "	17 "
May,	"	7,961,290 "	29 "	November,	"	51,440,000 "	30 "

Total quantity wasted . . . . 5,281,900,000 gallons.

Stony Brook Pipe Line.

This line has received the usual attention. All gates, air valves and blow-offs have been examined and marked. Four leaks have occurred during the year.

Hobbs Brook Reservoir.

The work, commenced in October, 1894, was continued during the Winter and Spring. On April 1st the men's pay was raised from $1.75 to $2.00 per day.

In April and May many of the men were sent to Cambridge to work at Fresh Pond and on Cambridge Street. The remainder of the men worked till June 11th, when they were sent to Cambridge.

Since this time the work at Hobbs Brook has been carried on by contractors.

Conclusion.

Following will be found the Engineer's Report, together with a statement of details of the past year's work, and the stock used and now on hand.

All of which is respectfully submitted.

EDWIN C. BROOKS,
Superintendent.

REPORT

OF

PUMPING ENGINEER.

PUMPING STATION, CAMBRIDGE WATER WORKS.
December 1st, 1895.

To the Honorable Water Board of the City of Cambridge:

GENTLEMEN,—I report the condition of the machinery at the Pumping Station as follows:

Engines Nos. 1, 3 and 4 are in good condition.

Engine No. 2 will need a thorough overhauling during the coming year.

The boilers are in good condition.

During the past year the high service engines have been moved from the centre of the basement to the east and west sides of the same to make room for the new Leavitt engine.

The pumping main for the high service has been connected up through the east check valve chamber, and a new 15-inch drain for air pumps has been laid to the large sewer in Fresh Pond Drive.

The contracts for the alterations to the roof of the Pumping Station and for the foundations of the new engine are well under way and will be completed at an early date.

The crane girders have not been delivered as yet, but there is no doubt of their being ready as soon as we will want to have them put in place.

Following will be found a statement of expenses at the Pumping Station and the usual table.

Respectfully submitted.

EDWIN C. BROOKS,
Engineer.

Recapitulation.

	24 Inch.	20 Inch.	12 Inch.	10 Inch.	8 Inch.	6 Inch.	4 Inch.	3 Inch.	2 Inch.	1½ Inch.	1¼ Inch.	1 Inch.	Total.
Length in feet of iron pipe, extensions	—	—	1141	—	484	6658½	1763	—	768½	64	100	104	11083
Length in feet of iron pipe, renewals . .	—	—	—	—	—	2338½	547	—	—	—	—	—	2885½
Number of gates . .	—	—	2	—	4	27	14	1	—	—	—	—	48
Number of hydrants	—	—	—	—	—	12	—	—	—	—	—	—	12
Length in feet of iron pipe, Cambridge St	3950	1960	1145	82	169	497	—	—	—	—	—	—	12753
Number of gates . .	3	3	9	—	5	56	—	—	—	—	—	—	76
Number of hydrants	—	—	—	—	—	21	—	—	—	—	—	—	21

New Supplies.

	6 Inch.	4 Inch.	2 Inch.	1½ Inch.	1¼ Inch.	1 Inch.	¾ Inch.	Total
Length in feet of pipe	210½	874	1779½	593½	2127½	3071	8610	22,266
Number of supplies	7	4	17	17	49	148	257	499
Number of stop and waste valves	—	—	15	17	47	145	254	478
Number of screw cocks	—	—	17	17	49	148	250	481
Number of sidewalk cocks . . .	—	—	—	1	48	145	248	442
Number of service boxes . . .	—	—	—	—	—	—	—	427
No. of boxes, frames and covers	—	—	—	—	—	—	—	45
Number of iron boxes	—	—	—	—	—	—	—	9

Eleven thousand eighty-three (11,083) feet of various sizes of pipe have been laid for extensions; fifteen thousand, six hundred thirty-eight and one-half (15,638 1-2) feet for renewals; and twenty-two thousand, two hundred sixty-six (22,266) feet for supplies, making a total length of nine and twenty-seven one-hundredths (9.27) miles of trenching and back filling.

Comparative Trenching for the Past Six Years.

	Extensions.	Removals.	Supplies.	Total Feet.	Miles.
1890	11,713 1-2	1,929	15,525	29,167 1-2	5.52
1891	9,858 1-2	2,958	17,864	30,680 1-2	5.81
1892	16,784 1-2	13,628	16,013	46,425 1-2	8.79
1893	18,380 1-2	11,008	14,233 1-2	43,621 1-2	8.26
1894	13,673	17,481 1-2	17,211	48,365 1-2	9.16
1895	11,083	15,638 1-2	22,266	48,987 1-2	9.27

Statement.

1527 $\frac{2170}{2240}$ tons Cumberland coal at $3.98	$6,081.32
Oil, waste, packing, etc.	210.09
Repairs on engines and boilers	47.01
Repairs on buildings and care of grounds	48.53
Tools and instruments	40.50
Lighting	18.18
Expressing	11.80
Ice	26.25
Salaries	6,644.77
	$13,128.45

Engine Record, Pond Levels and Rainfall.

Date.	Low Service Engines.						High Service Engine.			Total Water Pumped.	Daily Average Water Pumped.	Total Coal Consumed.	Daily Average Coal Consumed.	Av. Height of Pond.	Rainfall.
	Engine No. 1.			Engine No. 2.											
	Running Time.		Water Pumped.	Running Time.		Water Pumped.	Running Time.		Water Pumped.						
	Hrs.	Min.	Gallons.	Hrs.	Min.	Gallons.	Hrs.	Min.	Gallons.	Gallons.	Gallons.	Lbs.	Lbs	Feet	Inches
December, 1894	—	—	—	409	—	154,017,050	744	—	15,032,250	169,049,300	5,453,203	279,550	9,018	13.12	4.43
January, 1895	420	15	167,981,550	—	—	—	744	—	15,431.265	183,412,815	5,916,543	292,000	9,419	14 58	3.57
February, "	414	—	162,936,600	57	55	16,153,500	672	—	14,887,260	193,957,360	6,927,047	302,500	10,804	15.48	1.07
March, "	—	—	—	407	05	155,013,100	744	—	15,535,350	170,548,450	5,501,563	278,700	8,990	16.42	2 68
April, "	253	—	99,448,800	128	—	47,526,600	720	—	16,068,403	163,043,803	5,434,793	282,000	9,400	16.38	4.15
May, "	427	15	174,501,800	—	—	—	744	—	13,875,281	188,377,081	6,076,680	283,100	9,132	16.95	2.39
June, "	—	—	—	433	15	185,605,200	720	—	14,963,400	200,568,600	6,685,620	280,800	9,360	16.64	2.76
July, "	159	25	65,446,150	273	15	115,063,300	744	—	11,742,390	192,251,840	6,201,672	276,200	8,910	16.12	3.28
August, "	446	20	181,606,950	—	—	—	744	—	11,857,430	193,464,380	6,240,787	282,600	9,116	14.	4.71
September, "	445	30	175,821,800	—	—	—	710	45	12,804,378	188,626,178	6,287,540	289 900	9,660	11.76	1.83
October, "	434	—	169,392,850	—	—	—	744	—	12,881,565	182,274,415	5,877,820	292,100	9,423	12.15	10.16
November, "	—	—	—	398	30	152,864,800	715	45	12,342,870	165,207,670	5,506,922	283,200	9,440	13.30	6.09
Total . . .	2,999	45	1,197,116,500	2,107	—	826,243,550	8,746	30	167,421,842	2,190,781,892	—	3,422,650	—	—	47.12
Daily Average	8	13	3,279,771	5	46	2,263,681	23	58	458,690	6,002,142	—	9,377	—	14.74	—

REPORT

OF THE

TRUSTEES OF THE SINKING FUND OF THE CAMBRIDGE WATER WORKS.

To the Honorable the City Council:—

The undersigned, Trustees of the Sinking Fund of the Cambridge Water Works, herewith submit their annual report of the fund committed by law to their charge.

	Dr.	
Amount of the fund Nov. 30, 1894	$612,084 75	
Received during the year as follows:		
From the Treasurer of the City of Cambridge the annual appropriation from the water rates . .	69,142 50	
Also from the same source the surplus remaining at the close of the year in the maintenance accounts of the Water Works	4,218 75	
From interest and premium on investments	20,936 24	
		$706,382 24
	Cr.	
Amount paid as accrued interest on investments purchased . . .	$333 00	
Amount paid the City Treasurer of Cambridge to meet maturing Water Bonds	160,000 00	
Balance representing the amount of the Fund, Nov. 30, 1895 . .	$546,049 24	
		$706,382 24

Securities Belonging to the Sinking Fund of the Water Works, November 30, 1895.

Cambridge Water Loan, 3 1-2 per cent. bonds, maturing April 1, 1896	$100,000 00	
Cambridge Water Loan, 3 1-2 per cent. bonds, maturing July 1, 1896	75,000 00	
Cambridge Water Loan, 6 per cent. bonds, maturing July 1, 1896 .	66,000 00	
Cambridge Water Loan, 6 per cent. bonds, maturing July 1, 1897 .	16,000 00	
Cambridge Water Loan, 5 per cent. bonds, maturing July 1, 1898 .	12,500 00	
Cambridge Harvard Bridge Loan, 4 per cent. bonds, maturing Nov. 1, 1920	5,000 00	
Cambridge Contingent Loan, note, dated Dec. 1, 1893	200,000 00	
		$474,500 00
City of Lynn, 4 per cent. bonds, maturing July 1, 1899 . . .	11,000 00	
City of Boston, 4 per cent. bonds, maturing April 1, 1900 . . .	4,000 00	
City of Providence, 5 per cent. bonds, maturing July 1, 1906 .	50,000 00	
		65,000 00
		$539,500 00
Cash in bank on interest . . .		6,549 24
		$546,049 24

The bonded water debt, which the foregoing fund is to pay, matures as follows, *viz.*: —

April 1, 1896, 3 1-2 per cent. registered (or to April 1, 1911)	$100,000 00
July 1, 1896, 6 per cent. coupon	103,000 00
July 1, 1896, 3 1-2 per cent. registered (or to July 1, 1911)	75,000 00
July 1, 1897, 6 per cent coupon	16,000 00
July 1, 1898, 5 per cent. registered	12,500 00
November 1, 1906, 3 1-2 per cent. registered	43,000 00
October 1, 1907, 4 per cent. registered	75,000 00
October 1, 1907, 4 per cent. registered	15,000 00
November 1, 1907, 4 per cent. registered	22,000 00
July 1, 1908, 4 per cent, coupon	46,000 00
August 1, 1908, 4 per cent. coupon	25,000 00
July 1, 1909, 4 per cent, coupon	20,000 00
May 1, 1910, 4 per cent. registered	133,000 00
May 1, 1910, 4 per cent. coupon	155,000 00
July 1, 1910, 4 per cent. coupon	75,000 00
September 1, 1910, 4 per cent. coupon	125,000 00
January 1, 1911, 4 per cent. coupon	20,000 00
October 1, 1911, 4 per cent. coupon	35,000 00
January 1, 1912, 4 per cent. coupon	150,000 00
May 2, 1912, 4 per cent. coupon	75,000 00
November 1, 1912, 4 per cent. coupon	45,000 00
February 1, 1913, 4 per cent. coupon	100,000 00
August 1, 1913, 4 per cent. coupon	35,000 00
August 1, 1913, 4 per cent. registered	15,000 00
April 1, 1915, 4 per cent. registered	200,000 00
August 1, 1915, 4 per cent. registered	200,000 00
April 1, 1924, 4 per cent. coupon	300,000 00
	$2,215,500 00

WILLIAM A. BANCROFT,
JOHN L. ODIORNE,
WILLIAM W. DALLINGER,
Trustees of the Sinking Fund of the Cambridge Water Works.